35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

CUSTOMER RELEASE NOTES

SmartSwitch 2000/6000
Firmware Version 4.07.29
February, 2000

INTRODUCTION:

This document provides specific information for version 4.07.29 of firmware for the SmartSwitch 2000/6000 family of products. The following products are supported in this version of firmware:

2E42-27	2E43-51	2E49-27	2H23-50R
2E42-27R	2E43-51R	2E49-27R	2H33-37R
2E43-27	2E48-27	2H22-08R	2M46-04R
2E43-27R	2E48-27R	2H28-08R	2M46-04RDC
6E122-26	6E132-25	6E133-49	6H128-08
6E123-26	6E133-25	6E123-50	6H129-08
6E128-26	6E138-25	6H122-08	6H123-50
6E129-26	6E139-25	6H122-16	6H133-37

It is recommended that one thoroughly review this release note prior to the installation or upgrade of this product.

FIRMWARE SPECIFICATION:

Status	Version No.	Type	Release Date
Current Version	4.07.29	Customer	July 2000
Previous Version	4.07.28	Customer	February 2000
Previous Version	4.07.26	Internal	October 1998
Previous Version	4.07.25	Internal	June 1998

* Note: Several previous firmware releases apply only to particular products within the SmartSwitch 2000/6000 family. Please refer to the appropriate Release Notes for a list of the specific products supported by each release.

HARDWARE COMPATIBILITY:

This version of firmware is supported on all hardware revisions of the SmartSwitch 2000 SmartSwitch 6000

BOOTPROM COMPATIBILITY:

This version of firmware supports all boot prom versions shipped on the SmartSwitch 2000 and SmartSwitch 6000

35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

CUSTOMER RELEASE NOTES

NETWORK MANAGEMENT SOFTWARE SUPPORT:

NMS Platform	Version No.	Module No
SPECTRUM	v5.0	Rev 0
SPMA (Spectrum Portable Management Application)	v3.2	Rev 0
SmartSwitch ATM Administrator(SS/ATM-SPMA-23)	v2.3	n/a
SPEL (Spectrum Element Manager)	v2.1	n/a

If you install this image, you may not have control of all the latest features of this product until the next version(s) of network management software. Please review the software release notes for your specific network management platform for details.

SUPPORTED FUNCTIONALITY:

Features	Support
802.1P - Traffic Management/ Dynamic Multicast Filtering	No*
802.1Q – VLAN tagging and identification	No
Auto Negotiation	Yes
Broadcast Suppression	Yes
DLM	Yes
Ethernet/ FDDI Packet Translation	Yes
HSIM Support	Yes
IP Fragmentation	Yes
Local Management via TELNET	Yes
Modem Support	Yes
Path MTU Discovery	Yes
Port Locking	Yes
Port Mirroring	Yes
RMON	Yes
RMON Actions	Yes
Runtime Address Discovery	Yes
Runtime Download	Yes
Smart Trunking	Yes
System Resources View	Yes
TELNET	Yes
UPS Support	Yes
Virtual Networking – VLANs	Yes
Web View	No

35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

CUSTOMER RELEASE NOTES

* *This version of firmware does not support the SecureFast operating mode. In order to deploy SecureFast VLAN services on SmartSwitch 2000/6000 products, a separate firmware image is required. SecureFast version 1.8.15 is currently supported in firmware version 5.00.05 on the products listed at the beginning of this document.*

INSTALLATION AND CONFIGURATION NOTES:

If you would like to upgrade an existing SmartSwitch 2000 or SmartSwitch 6000 please follow the TFTP download instructions that are included with your firmware image upgrade kit. TFTP download instructions are also available on the Cabletron Support web site at: http://www.cabletron.com/support/techtips/tk0020-9.html .

The SmartSwitch 2000/6000 family supports two methods of installing new firmware images. The Runtime Download application allows the SmartSwitch to continue to operate while downloading a new firmware image through any network port. The SmartSwitch will then continue to use the original firmware image until the device is reset. The Standard Download application automatically disables the module while the new firmware image is downloaded through any Ethernet front panel port and resets at the successful completion of the download.

In the event that a Runtime Download is interrupted, the firmware image in flash memory will have been erased. The SmartSwitch 2000/6000 will continue to operate using the original firmware image until it is reset. If the device is reset prior to a successful Standard Download or Runtime Download, then SmartSwitch 2000/6000 can initiate a firmware image download from a BOOTP server **ONLY**! Although Runtime Download is a powerful firmware management feature, careful consideration should be given to both the timing (best when network usage is lowest) and network stability (especially downloads over a WAN link) at the time of the planned download. Consult your User's Guide for more details on performing firmware downloads.

Two versions of the same firmware image are shipped with each SmartSwitch 2000/6000 firmware upgrade kit. The file suffixed with **.hex** (after it has been decompressed from a .zip file) is for the Standard Download. The file suffixed with **.fls** (after is has been decompressed from a .zip file) is for the Runtime Download.

The SmartSwitch 2000/6000 switching mode is selectable in Local Management. The default Operational mode is 802.1D. Using this version of firmware, the Operational Mode field will Toggle between 802.1D and 802.1Q mode. Changing the *Operational Mode* will cause the module to reboot.

Enabling certain features such as Port Mirroring or extended RMON groups may reduce the overall performance of the switch, this is normal. These features should only be enabled when the functionality is required.

ATM Specific

This version of firmware for the HSIM-A6DP module supports the ATM Forum's standards for MPOA 1.0 client and UNI 3.0 and 3.1 Signaling. The HSIM-A6DP module is an 802.3 LAN Emulation (LEC) device and will operate in an 802.3 Emulated LAN. The following is the number 802.3 LEC's that the HSIM-A6DP supports in various operational modes with this firmware release:

802.1D Switching - 1 LEC
802.1Q Switching - 4 LEC's

Each LEC on a single HSIM-A6DP is treated as a bridge port with a separate Spanning Tree agent per LEC.

LAN Emulation version 2.0 Services must be installed on the ATM Network. As a minimum, there must be an 802.3 LAN Emulation Server (LES) and a Broadcast and Unknown Server (BUS). Additionally, there should be a LAN

35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

CUSTOMER RELEASE NOTES

Emulation Configuration Server (LECS) on the ATM network. If there is not a LECS on the ATM network, the ATM address of the LES must be manually entered on the HSIM-A6DP through Local Management.

Upon power-up the HSIM-A6DP will automatically join a default ELAN provided by ATM Services. The HSIM-A6DP will use the ATM address provided by Interim Local Management Interface (ILMI) to set up a connection to the LAN Emulation Configuration Server (LECS). If there is no response via ILMI, the HSIM-A6DP will set up a connection to the well-known ATM address of the LECS. If a connection is not successful to the well-known ATM address, the HSIM-A6DP will use the well-known VC of VPI=0, VCI=17 to connect to the LECS.

This firmware image supports Permanent Virtual Circuits via Local Management or the IETF AToM MIB (RFC-1695). When PVC's are used, the HSIM-A6DP encapsulates LAN traffic over ATM using RFC 1483 VC-based Multiplexing or LLC Encapsulation for Bridged Protocols.

This version of firmware supports up to 1020 SVC's using LANE 2.0 and UNI 3.0/3.1 signaling. The number of PVC's is limited to 64. Each PVC is treated as a bridge port with a separate Spanning Tree agent per PVC.

This firmware image provides support for Bandwidth Allocation over PVC's. When creating PVC's via Local Management, the user can specify a peak bandwidth allowed (in Mbps) to be transmitted on each PVC. This feature is available for PVC's only. SVC's are not allowed when using this feature.

FIRMWARE CHANGES AND ENHANCEMENTS:

HSIM-A6DP Specific

1. This version of firmware adds support for MPOA client on the HSIM-A6DP.

   Note: Please refer to the HSIM-A6DP User's Guide for firmware 4.00.xx or higher (part number 9032931) for details regarding configuration and administration of MPOA. This document is available on Cabletron's web site at http://www.cabletron.com/support/manuals.

2. A memory leak issue, which caused shortcut vccs to stop passing traffic, was fixed.

3. A memory leak issue, which results in an out of heap message and a consequential reset, was fixed.

KNOWN RESTRICTIONS AND LIMITATIONS:

General

1. Depending on the complexity of a particular configuration, it is possible to exceed the available non-volatile memory (NVRAM) supported on a SmartSwitch device when running this version of firmware. Although this is unlikely to occur in most network environments, it is possible in extreme cases (for example, if a large number of 802.1Q VLANs are established in combination with a large number of ATM PVCs, LECs, etc.). If NVRAM is exceeded, the switch may lose some of its configuration parameters when it is reset or powered-cycled. In this event, any lost parameters must be reconfigured via local or remote management.

2. Enabling the Port Mirroring feature on a SmartSwitch device running this version of firmware may cause "ping" sessions to become erratic (i.e. the switch may respond inconsistently to "ping" requests). This will be

addressed in a future release of firmware.

3. The Subnet Mask in the *"Chassis Configuration"* screen in local management may be displayed incorrectly. For example, after setting a Class B mask of 255.255.0.0, the Subnet Mask field may display 0.0.255.255 when this screen is exited and re-entered. This will be addressed in a future release of firmware.

4. SecureFast VLAN services are not supported in this firmware release. In order to deploy SecureFast VLAN services on the SmartSwitch 2000/6000, a separate firmware image is required. SecureFast 1.8.15 is supported in firmware version 5.00.05.

5. The *Repeater Configuration* screen supported by the SmartSwitch 2000/6000 MicroLAN products (2E43-51, 2E43-51R, 2H23-50R, 2H33-37R, 6E123-50, 6E133-49, 6H123-50, and 6H133-37) will allow the selection of "*Module Level Security* Configuration" and *"Port Level Security Configuration*" screens. **These screens are not fully supported in this release of firmware, and should be considered "beta" quality at this time**. Further enhancements to repeater security features will be provided in a future firmware release.

6. In Distributed Chassis Manager Local Management Screens (supported by the SmartSwitch 6000 only) the Subnet Mask field is not modifiable. The SmartSwitch 6000 automatically assigns the natural mask based on the IP address assigned. In order to use the device in an environment that requires complex IP subnet masking, you must enable "Proxy ARP" on your router or assign individual module IP addresses and subnet masks. This will be corrected in a future firmware release.

7. The SmartSwitch 2000/6000 switches will execute an automatic reboot after modifications to the switch IP address. This will also take place if the IP address is received via Runtime Address Discovery. The SmartSwitch 2000/6000 switches will also execute an automatic reboot after modifications to the operational mode (i.e. changing between *802.1Q Switching* and *802.1D Switching*).

8. The following issue pertains to packet traffic generated by network management functions such as traps, alarms, and out-bound Telnet or Pings.

   If the SmartSwitch 2000/6000 needs to transmit a management packet to an IP destination that has never been contacted before (or has not contacted the SmartSwitch 2000/6000 previously), the SmartSwitch 2000/6000 will send an ARP Request packet. This ARP Request will be transmitted out all interfaces and the SmartSwitch 2000/6000 will learn which of its ports can be used to contact the destination station. If this station's ARP entry ages out or if the station is moved to another port, subsequent ARPs will only be transmitted out the port that originally connected to the destination, and not out all ports. This results in an inability to initiate contact with a relocated station again until the station begins to transmit on the new port, at which time the SmartSwitch 2000/6000 will learn its new location.

9. Runtime firmware downloads will not work if the TFTP server is using one of the following RFC1819 reserved addresses. Non-Runtime downloads operate properly with all IP addresses.

   10.0.0.0
   172.16.0.0
   192.168.0.0

10. There is no distinction between "Jabbers" and "Oversized Packets" when reported as errors on switched 10/100 Mbps Ethernet ports. Both types of errors are displayed together as "Oversized Packets" in error logs. This applies to *dedicated* 10/100 ports only (i.e. not MicroLAN 10/100).

11. Due to the potential to oversubscribe the bandwidth of the packet data bus, it is recommended that following 10/100Mbps SmartSwitches not be configured with more than two 100Mbps ports running in full duplex at any one time: 2H22-08R, 2H28-08R, 6H122-08, 6H128-08, 6H129-08, 6H122-16.

12. SNMP counters in MIB-II do not increment properly. This will be corrected in a future firmware release.

13. Setting the following Cabletron Enterprise Container MIB OID could cause the device to reset: *contLogicalEntryAdminStatus*.

11. Repeater level alarms are not saved in non volatile RAM and will be lost if the device is reset.

12. When changing the operational mode of the SmartSwitch 2000/6000 (i.e. changing between *802.1Q Switching* and *802.1D Switching*), it is strongly recommended that NVRAM be cleared before resetting the SmartSwitch device. (Note: Please refer to your User's Guide for specific instructions on clearing NVRAM).

13. When this version of firmware is downloaded to a SmartSwitch 2000/6000 currently running an older firmware version, the year portion of the dates in local management may be set to unusual values. Resetting the date in the *General Configuration* menu and clearing any logs saved on the device will resolve this condition.

14. If this version of firmware is loaded in a SmartSwitch 6000 chassis in which the distributed chassis management feature (DMF) is enabled, it is recommended that all modules in the chassis be running this version (or greater) firmware. Configurations involving this version and older firmware versions with DMF enabled may result in garbled date information being displayed by modules, or other unpredictable behavior.

15. In order to fully disable IP Fragmentation in the SmartSwitch 6000 chassis, it is necessary to disable the feature on each individual SmartSwitch module within the chassis.

SmartTrunking Specific

1. This version of firmware supports an enhanced implementation of SmartTrunking which supersedes all previous SmartTrunking versions (i.e. the SmartTrunking feature in this release is not backward compatible with previous versions). In order to enable SmartTrunking between SmartSwitch 2000/6000 devices, this firmware version must be installed on all switches which have the SmartTrunking feature enabled.

2. The SmartTrunking feature in this version of firmware is currently compatible only with other SmartSwitch 2000/6000 products. Compatibility with other Cabletron switching products (including the SmartSwitch 9000, SmartSwitch Router, SmartStack series, and DEC GIGAswitch/FDDI) will be supported via future releases of firmware on these products.

3. When implementing SmartTrunking on the SmartSwitch 2000/6000, one should consider the overall throughput capability of the switch (or switch module) in order to minimize the potential for oversubscription. The SmartSwitch 2000/6000 products supporting this firmware are designed to forward data at rates up to 420,000 64-Byte packets per second (pps), depending on the configuration in which they are used.

   When creating a SmartTrunk group consisting of more than two 100Mbps Ethernet ports, or creating multiple SmartTrunk groups on a single switch, the potential exists to oversubscribe the switching fabric of the SmartSwitch 2000 or a single SmartSwitch 6000 module. However, if the network environment is such that switched segments are not expected to be pushed to their theoretical traffic limits (i.e. "wire speed"), then discretion on the part of the network administrator should be used in determining the appropriate number of active links in each SmartTrunk group and/or the appropriate number of SmartTrunk groups on a switch.

4. When using SmartTrunking on any of the SmartSwitch 2000/6000 MicroLAN products (2E43-51, 2E43-51R, 2H23-50R, 2H33-37R, 6E123-50, 6E133-49, 6H123-50, and 6H133-37), SmartTrunk groups should be configured only on uplink ports (i.e. FEPIMs or HSIMs).

5. SmartTrunking is currently supported over Ethernet (10/100/1000Mbps) and FDDI technologies only.

6. When configuring SmartTrunking on a SmartSwitch 2000 or SmartSwitch 6000 module operating in 802.1Q VLAN mode, please note the following:

   - All ports that will belong to the same SmartTrunk group must have the same 802.1Q VLAN settings.

- 802.1Q VLAN settings must be configured first on all ports that will belong to a SmartTrunk group (i.e. configure 802.1Q VLAN settings before the SmartTrunk group is created and enabled).

The easiest way to configure the same 802.1Q VLAN settings on ports that will belong to a SmartTrunk group is to set each of the ports as either "802.1Q Trunk" (all frames tagged) or "802.1D Trunk" (all frames untagged). Each of these settings will allow traffic from all VLANs to traverse the trunk link. If it is necessary to limit the number of VLANs allowed over the trunk, 802.1Q VLAN settings can be configured on each trunk port individually. (Please refer to Cabletron's *Port Based VLAN User's Guide* for further information on 802.1Q VLAN settings).

802.1Q Specific

1. HSIM-F6 modules cannot be installed in a SmartSwitch 2000/6000 operating in 802.1Q VLAN mode. This will be corrected in a future release.
2. Port Mirroring is not supported when the SmartSwitch 2000/6000 is operating in 802.1Q VLAN mode.
3. The SmartSwitch 2000/6000 supports up to 64 VLANs when operating in 802.1Q VLAN mode.

HSIM-A6DP Specific

1. This firmware release supports up to 4 LECs on the HSIM-A6DP.
2. When accessing the *LEC Administration* screen in local management, the *"Manual"* configuration option within the "*Configure LEC"* field is not currently supported.
3. Manual configuration of the LECS function is not supported via local management. (Note: manual configuration of LECS can be done via LANE Services MIBs)
4. The APIM-11 (100Mbps Taxi Interface) is not supported in this version of firmware.
5. This version of firmware does not provide support for the HSIM-A6DP Traffic Management daughter card.
6. SmartTrunking is not supported over ATM in this release of firmware.
7. When an HSIM-A6DP is installed in a SmartSwitch 2000/6000 running this version of firmware, enabling the Port Mirroring feature will cause all ports on the device to stop forwarding traffic. This issue will be addressed in a future release of firmware.
8. In order to have two HSIM-A6DPs installed in the 2M46-04R or 6M146-04, the HSIMs must have a hardware revision of "0C" or higher.

HSIM-G01/G09 Specific

1. This version of firmware must be installed and running on the SmartSwitch 2000/6000 before attempting to install the HSIM-G01 or HSIM-G09 module. The SmartSwitch will not operate properly if the firmware is not upgraded prior to installation of one of these HSIMs.
2. The HSIM-G01 and HSIM-G09 have auto-negation enabled by default. When connecting to a device that does not support auto-negotiation, this feature must be disabled on the HSIM-G01/G09. (Note: Please refer to your User's Guide for specific instructions on disabling the auto-negotiation feature).

HSIM-W87 Specific

1. This version of firmware must be installed and running on the SmartSwitch 2000/6000 before attempting to install

the HSIM-W87 module. The SmartSwitch will not operate properly if the firmware is not upgraded prior to installation of this HSIMs.

2. The HSIM-W87 interoperates as a channelized T3 connection with other Cabletron WAN products supporting HDLC WAN protocol. The following products and minimum firmware versions are necessary for IMUX interoperability:

   - CSX400 (firmware version 2.00.15 or higher)
   - HSIM-W6 (firmware version 2.00.15 or higher)
   - HSIM-W84 (firmware version 2.00.16 or higher)

3. Configuration of the HSIM-W87 is performed through the *Network Tools* utility in local management, which includes the ability to set up DSX1, DSX3, IMUX and DS1 Alarm thresholds. Additional configuration information can be found in the HSIM-W87 User's Guide.

Any other problems than those listed above should be reported to our Technical Support Staff.

COMPLIANCE SUPPORT:

Compliance Level	Compliant
Year 2000	Yes

Known Anomalies:

When this firmware is downloaded to a SmartSwitch 2000/6000 currently running an older version of firmware, the year portion of the dates displayed by local management may be set to unusual values. The solution to this condition is to reset the date in the *General Configuration* menu and clear any logs saved on the device.

IETF STANDARDS MIB SUPPORT:

RFC No.	Title	Groups Supported
RFC 1191	Path MTU Discovery	All
RFC 1213	MIB II	All
RFC 1354	IP Forwarding Table MIB	All
RFC 1406	DS1/E1 Interfaces	All
RFC 1407	DS3/E3 Interfaces	All
RFC 1493	Bridge MIB	All
RFC 1573	Evolution of MIBII Interfaces	All
RFC 1595	SONET MIB	All
RFC 1695	AToM MIB	All
RFC 1757	RMON MIB	All

CABLETRON PRIVATE ENTERPRISE MIB SUPPORT:

Title	Title	Title
actions-mib	**ctifremap-2-mib**	**ctups-mib**

35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

community-mib	**ctip-mib**	**ctvlan-ext-mib**
container mib	**ctmib2-ext-mib**	**ctwan-multi-imux-mib**
ctatm-mib	**ctpic-mib**	**fastethernet-mib**
ctbridge-mib	**ctremote-mib**	**rrev4-mib***
ctbroadcast-mib	**ctrouter-mib**	**sys-res-mib**
ctdownload	**ctSMT-mib**	**trap-mib**
ctenvir-mib	**ctTranslate**	

Cabletron Private Enterprise MIBs are available in ASN.1 format from the Cabletron web site at http://www.Cabletron.com/support/mibs. Indexed MIB documentation is also available.

SNMP TRAP SUPPORT:

RFC No.	Title	Groups Supported
1157	WARM START	All
1157	LINK DOWN	All
1157	LINK UP	All
1157	AUTHENTICATION FAILURE	All
1493	NEW ROOT	All
1493	TOPOLOGY CHANGE	All

CABLETRON PRIVATE ENTERPRISE TRAP SUPPORT:

Title	Title
0x1A2 interfacePortLinkUp	0x453 aPCShuttingDown
0x1A3 interfacePortLinkDown	0x44D aPCLineFail
0x3EB ctBroadcastThresholdReached	0x44E aPCLineFailRecovery
0x400 fddiPortConnectStateChange	0x450 aPCLowBatteryRecovery
0x403 fddiPortAction	0x451 aPCAbnormalCondition
0x404 fddiPortLerAlarm	0x708 wgPsInstalled
0x408 fddiMACRMTState	0x709 wgPsRemoved
0x409 fddiMACCurrentPath	0x70A wgPsNormal
0x40A fddi SMTCFstate	0x70B wgPsFail
0x40B fddiRingTopology	0x70C wgPsRedundant
0x40C fddiMACFrameErrorRatio	0x70D wgPsNotRedundant
0x40D fddiMACDuplicateMACAddress	0x70E wgBoardInserted
0x4B0 contLogicalChangesTrap	0x101 portsegmenting*
0x4B1 contPhysicalChangesTrap	0x10F boardTrafficThresholdExceeded*
0x70F wgBoardRemoved	0x111 boardCollisionThresholdExceeded*
0x102 port unsegmenting*	0x113 portErrorThresholdExceeded*
0x110 boardErrorThresholdExceeded*	0x121 boardBroadcastThresholdExceeded*
0x112 portTrafficThresholdExceeded*	0x129 rptrTrafficThresholdExceeded*
0x114 portCollisionthresholdExceeded*	0x131 rptrCollisionthresholdExceded*
0x122 portBroadcastThresholdExceeded*	0x2EE0 activePortInATMRedundancyFailed
0x130 rptrErrorThresholdExceeded*	0x2EE1 aTMRedundantPortActivated

35 Industrial Way
PO Box 5005
Rochester, NH 03867-5005
(603) 332-9400

0x133 rptrBroadcastThresholdExceeded*	0x2EE2 aTMRedundanctPortTestFailed
0x44F aPCLowBattery	0x2EE3 aTMRedundPrimaryPortSkipped
0x542 aPCAbnormConditionRecovery	0x2F12 atmLecStatus

GLOBAL SUPPORT:

By Phone: (603) 332-9400
By Email: support@cabletron.com
By Web: http://www.cabletron.com/support
By Fax: (603) 337-3075
By mail: Cabletron Systems, Inc.
P.O. Box 5005
Rochester, NH 03867-5005

For information regarding the latest firmware available, recent release note revisions, or if you require additional assistance please visit the Cabletron Support web site.